

Draft

# Hazardous Fire Risk Reduction Environmental Impact Statement

East Bay Hills, California

*April 2013*



**Federal Emergency Management Agency**  
**Department of Homeland Security**  
500 C Street, SW  
Washington, DC 20472

This document was prepared by:



with contributions from:

Anchor Point, Inc.

CH2M Hill

Contract No.: HSFEHQ-09-D-1128

Task Order: HSFE60-12-J-0003

## **Draft Environmental Impact Statement**

**Lead Agency:** U.S. Department of Homeland Security, Federal Emergency Management Agency (FEMA) Region IX.

**Cooperating Agencies:** U.S. Forest Service, National Park Service, U.S. Fish and Wildlife Service, National Marine Fisheries Service, California Emergency Management Agency (CalEMA), University of California Berkeley (UCB), City of Oakland (Oakland), East Bay Regional Park District (EBRPD)

**Title:** Hazardous Fire Risk Reduction, East Bay Hills, California

**Designation:** Draft Environmental Impact Statement

**Location:** Alameda and Contra Costa Counties, California

**Information Contact:** Alessandro Amaglio, Regional Environmental Officer, Region IX, FEMA, 1111 Broadway, Suite 1200, Oakland, CA 94607-4052  
(510) 627-7027

### **Abstract:**

The Hazardous Fire Risk Reduction Draft Environmental Impact Statement (EIS) evaluates the environmental effects that could occur if vegetation management designed to reduce wildfire hazard and risk is implemented in 105 defined project areas. One hundred of these areas are in the East Bay Hills, and the remaining five areas are in Miller/Knox Regional Shoreline, a facility of the EBRPD on San Francisco Bay. Vegetation management work in 60 of the 105 project areas was proposed in four grant applications submitted to FEMA by EBRPD, UCB, and Oakland through CalEMA. In addition to the vegetation management work proposed for FEMA funding, work is proposed within the project areas that may be funded by other agencies or that is not eligible for FEMA funding. The combination of vegetation management activities proposed for FEMA funding (the grant applications) and the activities proposed to be funded by others on the 60 project areas is identified as the proposed action. The draft EIS also addresses potential impacts of similar vegetation management activities on 45 project areas not included in the grant applications, which are referred to as connected project areas. Direct, indirect, and cumulative impacts resulting from the proposed and connected actions as well as the no action alternative on the physical, natural, and socioeconomic environment of the region are addressed in this draft EIS.

Reviewers should provide their comments to FEMA Region IX during the comment period of the draft EIS. FEMA will analyze and respond to the comments and will use the information acquired in the preparation of the final environmental impact statement (final EIS). Reviewers have an obligation to structure their participation in the National Environmental Policy Act (NEPA) process so that it is meaningful and alerts the agencies to the reviewers' position and contentions. Comments on the draft EIS should be specific and should address the adequacy of the statement and the merits of the alternatives discussed (40 Code of Federal Regulations (CFR) 1503.3).

**Comments on this document must be submitted by June 17, 2013.**

**Send Comments To:** FEMA, Region IX, P.O. Box 72379, Oakland, CA 94612-8579;  
email: [EBH-EIS-FEMA-RIX@fema.dhs.gov](mailto:EBH-EIS-FEMA-RIX@fema.dhs.gov); or fax: 510-627-7147.

This page intentionally left blank.

## **TABLE OF CONTENTS**

<b>Executive Summary .....</b>	<b>ES-1</b>
ES.1 The Grant Applications .....	ES-3
ES.1.1 UCB .....	ES-3
ES.1.2 Oakland .....	ES-3
ES.1.3 EBRPD.....	ES-4
ES.2 Lead and Cooperating Agencies.....	ES-4
ES.3 Environmental Review Requirements .....	ES-4
ES.4 Scope of this EIS .....	ES-5
ES.5 Public Involvement.....	ES-5
ES.6 Purpose and Need .....	ES-6
ES.7 Alternatives.....	ES-7
ES.7.1 No Action Alternative.....	ES-8
ES.7.2 Proposed and Connected Actions .....	ES-9
ES.8 Environmental Consequences.....	ES-13
 <b>Section One           Introduction.....</b>	 <b>1-1</b>
1.1 The Grant Applications .....	1-3
1.1.1 UCB .....	1-3
1.1.2 Oakland.....	1-4
1.1.3 EBRPD.....	1-4
1.2 Previous Environmental Assessment Related to the EIS .....	1-4
1.3 Lead and Cooperating Agencies.....	1-5
1.4 Statutory and Regulatory Framework.....	1-5
1.4.1 FEMA Hazard Mitigation Funding Programs .....	1-5
1.4.2 Environmental Review Requirements .....	1-6
1.5 Scope of this EIS .....	1-6
1.6 Public Involvement.....	1-7
1.7 Source References .....	1-8
 <b>Section Two           Purpose and Need for Action .....</b>	 <b>2-1</b>
2.1 Purpose and Need .....	2-1
2.2 Criteria for Alternatives to Meet the Purpose and Need .....	2-2
 <b>Section Three        Alternatives Including the Proposed and Connected Actions .....</b>	 <b>3-1</b>
3.1 Preliminary Alternatives .....	3-1
3.2 Changes to the Original EBRPD Grant Application .....	3-1
3.3 Alternatives Considered But Eliminated From Further Study .....	3-2
3.3.1 Alternative Hazardous Fuel Reduction Program Considered But Not Carried Forward for Additional Study.....	3-2
3.3.2 Broadcast Burning .....	3-4
3.3.3 Additional Specific Wildfire Hazard Reduction Measures Considered But Eliminated From Further Study .....	3-4
3.4 Alternatives Carried Forward for Additional Study .....	3-8

## Table of Contents

---

3.4.1	No Action Alternative.....	3-8
3.4.2	Proposed and Connected Actions .....	3-9
<b>Section Four</b>	<b>Affected Environment .....</b>	<b>4-1</b>
4.1	Resources and Areas of Concern Dismissed from Detailed Analysis .....	4.1-1
4.2	Biological Resources .....	4.2-1
4.2.1	Regulatory Setting .....	4.2-1
4.2.2	Vegetation and Wildlife.....	4.2-4
4.2.3	Sensitive Biological Resources.....	4.2-25
4.3	Fire and Fuels .....	4.3-1
4.3.1	Regulatory Setting .....	4.3-1
4.3.2	Methodology .....	4.3-2
4.3.3	Existing Conditions .....	4.3-6
4.4	Geology, Seismicity, and Soils.....	4.4-1
4.4.1	Geology and Geologic Hazards .....	4.4-1
4.4.2	Soils.....	4.4-9
4.5	Water Resources .....	4.5-1
4.5.1	Regulatory Setting .....	4.5-1
4.5.2	Surface Water.....	4.5-4
4.5.3	Groundwater .....	4.5-25
4.5.4	Floodplains.....	4.5-28
4.6	Air Quality .....	4.6-1
4.6.1	Regulatory Setting .....	4.6-1
4.6.2	Existing Conditions.....	4.6-6
4.7	Climate and Microclimate .....	4.7-1
4.7.1	Regulatory Setting .....	4.7-1
4.7.2	Methodology .....	4.7-1
4.7.3	Existing Conditions.....	4.7-6
4.8	Historic Properties .....	4.8-1
4.8.1	Regulatory Setting .....	4.8-1
4.8.2	Cultural Setting of the Proposed Project Area.....	4.8-4
4.8.3	Area of Potential Effect .....	4.8-14
4.8.4	Historic Properties Identification Methodology, and Archaeological and Built Environment Resources Identified in the Area of Potential Effect .....	4.8-15
4.8.5	Traditional Cultural Properties Identified in the Area of Potential Effect.....	4.8-21
4.9	Aesthetics and Visual Quality .....	4.9-1
4.9.1	Regulatory Setting .....	4.9-1
4.9.2	Methodology .....	4.9-3
4.9.3	Existing Conditions.....	4.9-6
4.10	Socioeconomics .....	4.10-1
4.10.1	Regulatory Setting .....	4.10-1
4.10.2	Methodology .....	4.10-1
4.10.3	Population Demographics.....	4.10-4
4.10.4	Housing Characteristics .....	4.10-7

## Table of Contents

4.10.5	Economic Conditions.....	4.10-10
4.10.6	Communities.....	4.10-11
4.10.7	Environmental Justice Communities .....	4.10-13
4.11	Human Health and Safety.....	4.11-1
4.11.1	Regulatory Setting .....	4.11-1
4.11.2	Methodology .....	4.11-12
4.11.3	Existing Conditions for Human Health and Safety.....	4.11-15
4.12	Public Services, Utilities, and Recreation .....	4.12-1
4.12.1	Public Services and Utilities .....	4.12-1
4.12.2	Recreation .....	4.12-13
4.13	Land Use and Planning.....	4.13-1
4.13.1	Regulatory Setting .....	4.13-1
4.13.2	Methodology .....	4.13-7
4.13.3	Existing Conditions.....	4.13-7
4.14	Transportation.....	4.14-1
4.14.1	Regulatory Setting .....	4.14-1
4.14.2	Methodology .....	4.14-4
4.14.3	Existing Conditions .....	4.14-5
4.15	Noise .....	4.15-1
4.15.1	Regulatory Setting .....	4.15-1
4.15.2	Methodology .....	4.15-1
4.15.3	Fundamentals of Noise .....	4.15-2
4.15.4	Noise Descriptors.....	4.15-3
4.15.5	Local Noise Standards .....	4.15-5
4.15.6	Sensitive Receptors Near the Proposed and Connected Project Areas .....	4.15-10
4.15.7	Existing Noise Environment .....	4.15-11
<b>Section Five</b>	<b>Environmental Consequences and Mitigation .....</b>	<b>5-1</b>
5.1	Biological Resources .....	5.1-1
5.1.1	Significance Criteria .....	5.1-1
5.1.2	Vegetation Communities .....	5.1-2
5.1.3	Aquatic Features .....	5.1-6
5.1.4	Common Wildlife .....	5.1-9
5.1.5	Wildlife Movement and Migration Corridors.....	5.1-11
5.1.6	Sensitive Biological Resources in the Proposed and Connected Project Areas.....	5.1-12
5.2	Fire and Fuels .....	5.2-1
5.2.1	General Observations.....	5.2-1
5.2.2	No Action Alternative.....	5.2-2
5.2.3	Proposed and Connected Actions .....	5.2-3
5.3	Geology, Seismicity, and Soils.....	5.3-1
5.3.1	Geology, Seismicity, and Seismic Hazards .....	5.3-1
5.3.2	Soils.....	5.3-2
5.4	Water Resources .....	5.4-1
5.4.1	Surface Water.....	5.4-1

## Table of Contents

5.4.2	Groundwater .....	5.4-5
5.4.3	Floodplains.....	5.4-5
5.4.4	Best Management Practices and Mitigation Measures .....	5.4-7
5.5	Air Quality .....	5.5-1
5.5.1	No Action Alternative.....	5.5-6
5.5.2	Proposed and Connected Actions .....	5.5-7
5.5.3	Avoidance and Mitigation Measures .....	5.5-10
5.6	Climate and Microclimate .....	5.6-1
5.6.1	No Action Alternative.....	5.6-3
5.6.2	Proposed and Connected Actions .....	5.6-5
5.6.3	Avoidance and Mitigation Measures .....	5.6-10
5.7	Historic Properties .....	5.7-1
5.7.1	Impact Assessment Methodology .....	5.7-1
5.7.2	No Action Alternative.....	5.7-1
5.7.3	Proposed and Connected Actions .....	5.7-1
5.7.4	Mitigation Measures .....	5.7-5
5.8	Aesthetics and Visual Quality .....	5.8-1
5.8.1	Impact Assessment Methodology .....	5.8-1
5.8.2	No Action Alternative.....	5.8-2
5.8.3	Proposed and Connected Actions .....	5.8-3
5.8.4	Avoidance and Mitigation Measures .....	5.8-20
5.9	Socioeconomics .....	5.9-1
5.9.1	Community Character.....	5.9-1
5.9.2	Residential Property Values.....	5.9-2
5.9.3	Induced Growth .....	5.9-3
5.9.4	Environmental Justice.....	5.9-3
5.10	Human Health and Safety.....	5.10-1
5.10.1	No Action Alternative.....	5.10-1
5.10.2	Proposed and Connected Actions .....	5.10-2
5.10.3	Avoidance and Mitigation Measures .....	5.10-13
5.11	Public Services, Infrastructure, and Recreation.....	5.11-1
5.11.1	Public Services and Infrastructure .....	5.11-1
5.11.2	Recreation .....	5.11-2
5.12	Land Use and Planning.....	5.12-1
5.12.1	No Action Alternative.....	5.12-1
5.12.2	Proposed and Connected Actions .....	5.12-1
5.12.3	Avoidance and Mitigation Measures .....	5.12-3
5.13	Transportation.....	5.13-1
5.13.1	Proposed and Connected Actions .....	5.13-1
5.13.2	No Action Alternative.....	5.13-2
5.13.3	Proposed and Connected Actions .....	5.13-2
5.13.4	Avoidance and Mitigation Measures .....	5.13-10
5.14	Noise.....	5.14-1
5.14.1	No Action Alternative.....	5.14-2
5.14.2	Proposed and Connected Actions .....	5.14-2
5.14.3	Avoidance and Mitigation Measures .....	5.14-5



## Table of Contents

5.15	Unavoidable Adverse Environmental Effects .....	5.15-1
5.15.1	Biological Resources .....	5.15-1
5.15.2	Soils.....	5.15-1
5.15.3	Air Quality .....	5.15-1
5.15.4	Climate and Microclimate.....	5.15-1
5.15.5	Aesthetics and Visual Quality.....	5.15-1
5.15.6	Human Health and Safety .....	5.15-1
5.15.7	Recreation .....	5.15-2
5.15.8	Transportation .....	5.15-2
5.15.9	Noise .....	5.15-2
5.16	Irreversible and Irretrievable Commitment of Resources .....	5.16-1
5.17	Relationship Between Short-Term Uses and Long-Term Productivity.....	5.17-1
<b>Section Six</b>	<b>Cumulative Impacts.....</b>	<b>6-1</b>
6.1	Methodology.....	6.1-1
6.1.1	Cumulative Actions Addressed.....	6.1-1
6.1.2	Relevant Geographical Areas .....	6.1-1
6.1.3	Analyzed Resources.....	6.1-1
6.1.4	Evaluation of Cumulative Impacts on Resources .....	6.1-1
6.2	Biological Resources .....	6.2-1
6.2.1	Vegetation and Wildlife.....	6.2-1
6.2.2	Sensitive Biological Resources in the Proposed and Connected Project Areas.....	6.2-2
6.2.3	Wildlife Movement Corridors.....	6.2-3
6.3	Soil and Water Quality .....	6.3-1
6.3.1	Erosion and Sedimentation .....	6.3-1
6.3.2	Herbicide Use.....	6.3-2
6.4	Air Quality .....	6.4-1
6.5	Climate Change and Greenhouse Gases .....	6.5-1
6.6	Aesthetics and Visual Quality .....	6.6-1
6.6.1	Proposed and Connected Actions .....	6.6-1
6.7	Socioeconomics .....	6.7-1
6.7.1	Community Character.....	6.7-1
6.7.2	Residential Property Values.....	6.7-1
6.7.3	Induced Growth .....	6.7-2
6.7.4	Environmental Justice Populations.....	6.7-2
6.8	Human Health and Safety.....	6.8-1
<b>Section Seven</b>	<b>Public Participation and Coordination.....</b>	<b>7-1</b>
7.1	Public Involvement.....	7-1
7.1.1	Public Scoping .....	7-1
7.1.2	Public Hearings.....	7-1
7.2	Agency Coordination.....	7-1
7.2.1	Cooperating Agencies.....	7-2
7.3	Government-to-Government Consultation .....	7-2
7.4	Consultation Pursuant to Section 106 of the NHPA.....	7-3

## Table of Contents

---

7.5	Endangered Species Act Consultation.....	7-3
7.6	Environmental Justice – E.O. 12898 .....	7-4
7.7	Document Availability .....	7-4
7.7.1	Hard Copy Locations .....	7-5
7.7.2	Website .....	7-6
7.8	Distribution List.....	7-6
7.8.1	Elected Official, Representatives, and Government Agencies .....	7-6
7.8.2	Businesses, Organizations, and Individual Members of the Public.....	7-6
<b>Section Eight</b>	<b>List of Preparers and Contributors.....</b>	<b>8-1</b>
<b>Section Nine</b>	<b>References .....</b>	<b>9-1</b>
<b>Section Ten</b>	<b>Figures.....</b>	<b>10-1</b>
<b>Section Eleven</b>	<b>Tables .....</b>	<b>11-1</b>

### Appendices

- A. Notice of Intent
- B. Erosion Modeling
- C. Excerpt from the San Francisco Basin Plan
- D. Emission Factors and Total Emissions
- E. Important Viewpoints Maps and Survey Logs
- F. Screening Risk Human Health and Ecological Risk Assessment
- G. Existing Contamination and Locations of Water Wells Inside and Surrounding  
Proposed and Connected Project Areas
- H. Wildfire Literature Review
- I. Noise Calculations
- J. Memorandum of Understanding
- K. Scoping Report
- L. Herbicide Use and Wood Chip Application Literature Review
- M. Fire and Fuels Modeling
- N. State Historic Preservation Office Consultation Letter
- O. U.S. Fish and Wildlife Service and National Marine Fisheries Service  
Biological Assessment Consultation History

## **Table of Contents**

---

This page intentionally left blank.

## Acronyms and Abbreviations

AAA	Anti-Aircraft Artillery
AB	Assembly Bill
ABAG	Association of Bay Area Governments
AC Transit	Alameda-Contra Costa County Transit District
ACFD	Alameda County Fire Department
ACHP	Advisory Council on Historic Preservation
ACS	American Community Survey
ACTC	Alameda County Transportation Commission
ADT	average daily traffic
APCO	air pollution control officer
APE	area of potential effect
AST	aboveground storage tank
AWS	Alameda whipsnake
BA	biological assessment
BAAQMD	Bay Area Air Quality Management District
BART	Bay Area Rapid Transit
BEHAVE	fire behavior prediction and fuel modeling system
BCDC	San Francisco Bay Conservation and Development Commission
BGEPA	Bald and Golden Eagle Protection Act
BLM	Bureau of Land Management
BMP	best management practice
BO	biological opinion
CA BOND EXP. PLAN	bond expenditure plan

## Acronyms and Abbreviations

---

CAA	Clean Air Act
CAC	County Agricultural Commissioner
Cal-IPC	California Invasive Plant Council
Cal EMA	California Emergency Management Agency—formerly California Office of Emergency Services (OES)
Cal/EPA	California Environmental Protection Agency
Cal Fire	California Department of Forestry and Fire Protection
Cal/OSHA	California Division of Occupational Safety and Health
Calfish	California Cooperative Anadromous Fish & Habitat Data Program
Caltrans	California Department of Transportation
CARB	California Air Resources Board
CBD	central business district
CCC	Central California Coast
CCR	California Code of Regulations
CCTA	Contra Costa Transportation Authority
CD	compact disk
CDFG	California Department of Fish and Game
CDFW	California Department of Fish and Wildlife
CDPH	California Department of Public Health
CDPR	California Department of Parks and Recreation
CDPR	California Department of Pesticide Regulation
CEC	California Energy Commission
CEQ	Council on Environmental Quality
CEQA	California Environmental Quality Act
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act of 1980
CERCLIS	Comprehensive Environmental Response, Compensation, and Liability Information System

CESA	California Endangered Species Act
cf	cubic feet
CF	non-native coniferous forest
CFGF	California Fish and Wildlife (formerly Game) Code
CFR	Code of Federal Regulations
cfs	cubic feet per second
CGC	California Government Code
CGS	California Geological Survey
CH <sub>4</sub>	methane
CHSL	California Human Health Screening Level
CHMIRS	California Hazardous Material Incident Reporting System
CNDDDB	California Natural Diversity Database
CNEL	community noise equivalent level
CNPS	California Native Plant Society
CO	carbon monoxide
CO <sub>2</sub>	carbon dioxide
CO <sub>2</sub> eq	carbon dioxide equivalent
CORRACTS	RCRA handlers ordered to implement corrective actions
CORTESE	Hazardous Waste and Substances Sites List
CRLF	California red-legged frog
CSC	California species of concern
CSU	conditional secondary unit
CUPA	Certified Unified Program Agency
CWA	Clean Water Act
CWHR	California Wildlife Habitat Relationships
D	diesel for all diesel fueled engines

## Acronyms and Abbreviations

---

dB	decibel
dBA	A-weighted decibel
DBH	diameter at breast height
DDT	dichloro diphenyl trichloroethane
DEED	deed or land restrictions
DFW	California Department of Fish and Wildlife
DHS	U.S. Department of Homeland Security
DNL	day-night weighted-average sound level
DOC	California Department of Conservation
DOD	Department of Defense
DPS	distinct population segment
DSMOA	Defense and State Memorandum of Agreement
DTSC	California Department of Toxic Substances Control
du	dwelling unit
DWR	California Department of Water Resources
EA	environmental assessment
EACCS	East Alameda County Conservation Strategy
EBMUD	East Bay Municipal Utility District
EBRPD	East Bay Regional Park District
EDR	Environmental Data Resources Inc.
EFH	essential fish habitat
EH&S	environmental health and safety
EHAP	Environmental Hazards Assessment Program
EIR	environmental impact report
EIS	environmental impact statement
EMFAC2011	CARB's on-road vehicle emissions model



EMI	Emissions Inventory Database
EMS	emergency medical services
ENF	water board enforcement actions
ENG	engineering
ENVIROSTOR	DTSC database for known and potential hazardous substance sites
EPA	Environmental Protection Agency
EPCRA	Emergency Planning and Community Right-to-Know Act
ERNS	Emergency Response Notification System
ESA	Endangered Species Act
ESU	Evolutionarily Significant Units
EUC	Eucalyptus forest
EUGL	Eucalyptus <i>globulus</i> (blue-gum eucalyptus)
°F	degrees Fahrenheit
FBFM	fire behavior fuel model
FD	federal delisted
FE	federal endangered
FEMA	Federal Emergency Management Agency
FFDCA	Federal Food, Drug, and Cosmetic Act
FHWA	Federal Highway Administration
FIA	Forest Inventory Analysis
FID	Facility Inventory Database
FIFRA	Federal Insecticide, Fungicide, and Rodenticide Act
FINDS	Facility Index System
FIRM	Flood Insurance Rate Map
FlamMap	quantitative spatial modeling program
FQPA	Food Quality Protection Act

## Acronyms and Abbreviations

---

ft	feet
FT	federal threatened
FTTS	FIFRA/TSCA Tracking System
FUDS	formerly used defense site
FuME	fuel management erosion analysis
G2	gasoline for 2-stroke engines (such as chainsaw engines)
G4	gasoline for 4-stroke engines (such as automobile and large equipment engines)
gal/day	gallons per day
GHG	greenhouse gas
GIS	geographic information system
HAFFMP	Hill Area Fire Fuel Management Plan
HAP	hazardous (toxic) air pollutant
HAZNET	EDR database of hazardous waste manifests
HBX	housing and business mix
HCP	habitat conservation plan
HEF	Hills Emergency Forum
HIST Cal-Sites	DTSC Calsites database
HMA	Hazard Mitigation Assistance grant programs
HMBP	Hazard Materials Business Plan
HMGP	Hazard Mitigation Grant Program
HP	horsepower
HUD	U.S. Department of Housing and Urban Development
HWP	information on permitted hazardous waste facilities and corrective action tracked in EnviroStor
HWT	listing of hazardous waste transporters
HWY	highway

Hz	Hertz
I	interstate
INST	institutional
IPM	Integrated Pest Management
IX	roman numerical nine
kg	kilogram
L	NRHP listed
LBNL	Lawrence Berkeley National Laboratory
lbs/day	pounds per day
LCFS	low carbon fuel standards
$L_{dn}$	day-night average sound level
$L_{eq}$	equivalent sound level
LF	landfill sites
$L_{max}$	maximum $L_{eq}$
$L_{min}$	minimum $L_{eq}$
LQG	large quantity generator
LRDP	long range development plan
LUP	Land Use Plan
LUST	leaking underground storage tank
MBTA	Migratory Bird Treaty Act
MCL	maximum contaminant level
$\mu\text{g}/\text{m}^3$	micrograms per cubic meter
mg/L	milligrams per liter
MHA	Metropolitan Horsemen's Association
MINES	mine identification number
$\mu\text{m}$	micrometers

## Acronyms and Abbreviations

---

MMP	mitigation and monitoring plan
μPa	micropascals
MOU	memorandum of understanding
mph	miles per hour
MRI	Midwest Research Institute
MSDS	material safety data sheet
MSFCMA	Magnuson-Stevens Fishery Conservation and Management Act
N <sub>2</sub> O	nitrous oxide
NA	not applicable
NAAQS	National Ambient Air Quality Standards
NAHC	Native American Heritage Commission
NC	not calculated, no acute activity
NCCP	Natural Community Conservation Plan
NEPA	National Environmental Policy Act
NESC	National Electrical Safety Code
NFIP	National Flood Insurance Program
NFRAP	no further remedial action planned
NH <sub>3</sub>	ammonia
NHD	National Hydrography Dataset
NHPA	National Historic Preservation Act
NHRP	National Register of Historic Places
NMFS	National Marine Fisheries Service
NO <sub>2</sub>	nitrogen dioxide
NO <sub>x</sub>	nitrogen oxides
NOAA	National Oceanic and Atmospheric Administration
NonGen	nongenerators

NPDES	National Pollutant Discharge Elimination System
NPL	National Priorities List
NPPA	Native Plant Protection Act
NPS	National Park Service
NR	not recommended for NHRP eligibility
NRHP	National Register of Historic Places
NWCG	National Wildfire Coordinating Group
NWI	National Wetlands Inventory
O <sub>2</sub>	molecular oxygen
O <sub>3</sub>	ozone
Oakland	City of Oakland
OEHHA	Office of Environmental Health Hazard Assessment
OES	California Office of Emergency Services
OFFROAD2007	CARB's off-road equipment emissions model
OHWM	ordinary high water mark
ONO	Oakland North
OSHA	Occupational Safety and Health Administration
OSO	Oakland South
OSWER	Office of Solid Waste and Emergency Response
OW	oak-bay forest
PADS	PCB Activity Database
PAH	polycyclic aromatic hydrocarbons
Pb	lead
PCB	polychlorinated biphenyl
PCE	primary constituent element
PDM	Pre-Disaster Mitigation

## Acronyms and Abbreviations

---

PEL	permissible exposure limit
PETB	Pesticide and Environmental Toxicology Branch
PG&E	Pacific Gas & Electric
PHG	public health goal
PIRA	<i>Pinus radiata</i> (Monterey pine)
PL	public law
PM	particulate matter
PM-2.5	particulate matter 2.5 micrometers or less in diameter
PM-10	particulate matter 10 micrometers or less in diameter
PMAC	Pest Management Advisory Committee
PP-CS	Physical Plant-Campus Services
PPE	personal protective equipment
ppb	parts per billion
ppm	parts per million
PRC	California Public Resources Code
PRIA	Pesticide Registration Improvement Act of 2003
PRIA2	PRIA Renewal Act
Proposition 65	California Safe Drinking Water and Toxic Enforcement Act
PRP	Potentially Responsible Parties
PSD	prevention of significant deterioration
PSIS	Pesticide Safety Information Series
QUAG	<i>Quercus agrifolia</i> (coast live oak)
R	recommended for NHRP eligibility
RADINFO	Radiation Information Database
RCRA	Resource Conservation and Recovery Act of 1976
RDWD	redwood forest

RESPONSE	confirmed release sites
RMS	root-mean-square
ROD	record of decision
RTA	recommended treatment area
RWQCB	Regional Water Quality Control Board
SARA	Superfund Amendment and Reauthorization Act of 1986
SE	state endangered
SESE	<i>Sequoia sempervirens</i> (coast redwood)
SFBAAB	San Francisco Bay Area Air Basin
SFHA	Special Flood Hazard Area
SFRWQCB	San Francisco Regional Water Quality Control Board
SHPO	State Historic Preservation Officer
SLIC	spills, leaks, investigations and cleanup
SO <sub>2</sub>	sulfur dioxide
SO <sub>x</sub>	sulfur oxides
SPCC	Spill Prevention, Control & Countermeasure Plan
SPL	sound pressure level
SQG	small quantity generator
SR	state rare
SR	state route
SRA	State Responsibility Area
ST	state threatened
SWEEP	Statewide Environmental Evaluation and Planning System
SWF	solid waste facilities
SWPPP	Stormwater Pollution Prevention Plan
SWRCB	State Water Resources Control Board

## Acronyms and Abbreviations

---

TCP	3,5,6-trichloro-2-pyridinol
TDS	total dissolved solids
Tg	teragrams
TMDL	total maximum daily load
TRIS	Toxic Release Inventory System
TSCA	Toxic Substance Control Act
TSD	treatment, storage, and disposal
UCB	University of California, Berkeley
UCEH&S	University of California Environmental Health & Safety Group
UCFMC	UCB Fire Mitigation Committee
UCPD	University of California Police Department
UMCA	<i>Umbellularia californica</i> (California bay-laurel)
Unified Program	Unified Hazardous Waste and Hazardous Materials Management Regulatory Program
USACE	U.S. Army Corps of Engineers
U.S.C.	U.S. Code
USDA	U.S. Department of Agriculture
USFS	U.S. Forest Service
USFWS	U.S. Fish and Wildlife Service
USGS	U.S. Geological Survey
UST	underground storage tank
VMT	vehicle miles traveled
VOC	volatile organic compound
Vol	volume
WBWG	Western Bay Working Group
WCCTAC	Western Contra Costa Transportation Advisory Committee
WDS	waste discharge system



WEPP	Water Erosion Prediction Project
WHRRMP	EBRPD Wildfire Hazard Reduction and Resource Management Plan
WPA	Works Progress Administration
WRCC	Western Regional Climate Center
WUI	wildland-urban interface
2020 COR ACTION	2020 Corrective Action Universe

## Acronyms and Abbreviations

---

This page intentionally left blank.